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Patent Claims

1. An automatically operating sun position follow-up means for solar modules comprising

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a base (1, 2, 3) for fastening of the means at a stationary or movable part, especially a vehicle;

a rotary plate (4) rotationally supported on the base (1, 2, 3) and driven by a rotary drive;

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a pivot frame (31) pivotally supported at the pivot plate (4) and driven by means of a pivot drive (30) and having supported thereat at least one solar module (13); and

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an optosensor (14) which generates signals in response to the position of the sun and supplies the same to a control unit (10) which controls the rotary drive and/or the pivot drive (30);

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wherein the rotary frame (31) includes at least one member (19) fixedly connected to the rotary plate (14) and at least one pivot member (20) pivotally supported at said member (19) and carrying the solar module (13), the pivot drive (30) is supported in the end portion of the member (19) fixedly connected to the rotary plate (4) at the member (19) transversely with respect to the axis thereof and does not protrude beyond the member (19) upwardly, and the pivot drive (30) includes a motor (24), a reducing transmission (22, 23) and a transmission output shaft (26) provided with a toothing and engaged with a sector gear (25) connected to the pivot member (20) of the pivot frame (31).

2. The sun position follow-up means according to claim 1, characterized in that the sector gear (25) covers an arc of about 120° .
3. The sun position follow-up means according to claim 1 or 2, characterized in that the pivot member (20) with sector gear (25) is pivotally supported between two members (19) fixedly connected to the rotary plate (4).
4. The sun position follow-up means according to one of the preceding claims, characterized in that motor (24), reducing transmissions (22, 23) and transmission output shaft (26) are supported at two members (19) fixedly connected to the rotary plate

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(4) and having between them the toothing of the transmission output shaft (26).

5. The sun position follow-up means according to one
5 of the preceding claims, characterized in that it includes on the whole four members (11, 19) fixedly connected to the rotary plate (4) of which the two outer ones (11) are pivotally connected to a pivot member (13) and the two inner ones (19) are
10 connected to the pivot member (20) including the sector gear (25).

6. The sun position follow-up means according to one
15 of the preceding claims, characterized in that the fixedly connected members (11, 19) and pivot members (13, 20) are rods.

7. The sun position follow-up means according to one
20 of the preceding claims, characterized in that the rotary plate (4) is rotatably supported on the base (1, 2, 3) by means of balls (6) arranged within an annular groove (5).

8. The sun position follow-up means according to one
25 of the preceding claims, characterized in that the base (1, 2, 3) consists of a bottom plate (1), a housing (2) arranged thereon and a fixed plate (3) arranged thereon for the support of the rotary plate (4).

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9. The sun position follow-up means according to one of the preceding claims, characterized in that the rotary drive has a motor (16), a reducing transmission (15) and a drive screw (9) which is in engagement with a drive gear (8) for the rotary plate (4).

10. The sun position follow-up means according to one of the preceding claims, characterized in that the rotary drive and the control unit (10) are arranged in the housing (2) of the base.

11. The sun position follow-up means according to one of the preceding claims, characterized in that the optosensor (14) includes

a base (100),

a separation means (200) arranged on the base (100) and dividing the space above the base (100) into a plurality of upwardly and laterally open compartments (160),

at least one light receiving means (300) in every compartment (160) which converts light into electrical current, and

electrical lines (400, 500) connected to said light receiving means (300) and extending to a control/evaluating/indicating unit (700).

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12. The sun position follow-up means according to claim 11, characterized in that the separation means (200) divides the space above the base (100) into four compartments (160).

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13. The sun position follow-up means according to claim 11 or 12, characterized in that a light receiving means (300) is arranged in every compartment (160).

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14. The sun position follow-up means according to one of the claims 11 to 13, characterized in that the light receiving means (300) is a photodiode.

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15. The sun position follow-up means according to one of the claims 11 to 14, characterized in that it includes a base (100) approximately square in horizontal section and a separation means (200) with walls arranged along the diagonals of the base (200).

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16. The sun position follow-up means according to one of the claims 11 to 15, characterized in that it is provided at a solar panel which is rotatably and pivotally movably arranged.

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